

ENERGY COMMISSION STAFF DISCUSSION DRAFT AB 118 SUSTAINABILITY GOALS AND EVALUATION CRITERIA: PROJECT APPLICABILITY AND WEIGHTING FACTORS

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This document summarizes the sustainability goals and evaluation criteria described in Section 3101.5 of the draft AB 118 regulations for the Alternative and Renewable Fuel and Technology Program. It is intended to provide guidance for staff and applicants for implementation of the AB 118 sustainability goals and criteria as the AB 118 Program moves to the solicitation phase. This document will be discussed at the Sustainability Working Group workshop on April 9, 2009 in Sacramento.

This document describes the applicability of the Section 3101.5 sustainability goals and evaluation criteria to projects seeking AB 118 funding. It proposes relative weighting factors and options for calculating sustainability scores, and describes key questions and data needed to assess how well projects and interagency agreements meet the sustainability goals. It is the Energy Commission's intent to apply the sustainability goals and evaluation criteria to all applicable AB 118 funding decisions.

Summary of Three Sustainability Goals – 3101.5 (a)

"The sustainability goals described in this section shall guide the commission in ensuring that funded projects promote sustainable alternative fuels and vehicles and do not adversely affect natural resources. The criteria described in subpart (b) shall serve as the metrics by which the Commission identifies projects that best achieve the sustainability goals."

1. The first sustainability goal shall be the ***substantial reduction of greenhouse gas emissions*** associated with California's transportation system to help meet California's 2020 and 2050 targets as defined in Health and Safety Code Section 38550 and the Governor's Executive Order S-03-05.
2. The second sustainability goal shall be to ***protect the environment, including all natural resources***, from the effects of alternative and renewable fuel development and ***promote the superior environmental performance*** of alternative and renewable fuels, infrastructure and vehicle technologies.
3. The third sustainability goal shall be to ***enhance market and public acceptance of sustainably produced alternative and renewable fuels*** by developing, promoting, and creating incentives for the production of such fuels in accordance with ***certified sustainable production practices and standards*** as established by government agencies, academic institutions, and nongovernmental organizations.

Note that these are summaries of the three goals. The full text of the AB 118 sustainability regulations are provided in Appendix A.

I. – APPLICABILITY OF AB 118 SUSTAINABILITY CRITERIA

For the 2008-2009 Investment Plan and funding categories, staff will apply the first sustainability goal – substantial reduction of greenhouse gas emissions – to all projects. The second and third goals and supporting criteria will be applied to the following project categories:

- Infrastructure used to transport, distribute, and sell biofuels
- Bio-refineries and bio-processing facilities for biofuels
- Feedstocks for biofuel production, including waste streams, forest biomass, and purpose-grown energy crops

The second and third goals will not be applied to projects involving vehicles or batteries. No sustainability factors will be applied to grants for workforce training.

As appropriate, the sustainability goals and evaluation criteria will also be applied to interagency funding agreements to ensure that all AB 118 funds are used to further the Energy Commission's policy objectives and statutory obligations for sustainability.

Feasibility Studies may also be funded through the AB 118 Program. Such studies or interim project funding would need to be fully evaluated with the sustainability criteria. Such interim funding measures could also provide an opportunity for staff to work with project developers to build more sustainability factors into a project as a condition of funding.

Obligation to Provide Sustainability Information

All applicants for AB 118 funding are expected to provide information on the sustainability of their proposed projects. Indeed, applicants are encouraged to highlight the sustainability aspects of their proposed projects. The information should be presented so that it corresponds to the goals and evaluation criteria. Specific information requirements are described in Table 2. The burden of proof for providing accurate information rests with the applicants. Applicants should be prepared to support and affirm the sustainability claims.

Applicants may choose not to submit sustainability information. Such applicants would receive a sustainability score of zero, and will be ranked accordingly in a competitive bid process.

As described in the July 2008 concepts paper, subsequent staff workshops, and the Initial Statement of Reasons, Energy Commission staff interprets sustainable practices and operations to generally exceed environmental regulatory minimums as established by state and federal law.

Table 1 - Summary of Applicability

Criteria	Infra-structure	Bio-Refineries	Feed-stocks
<u>Criteria 1</u> Strong preference for projects with substantial reductions in greenhouse gas emissions	x	x	x
<u>Criteria 2</u> Strong preference to projects demonstrating environmental protection, natural resource preservation and superior environmental performance	x	x	x
<u>Criteria 2A</u> Projects that maximize use of waste streams as feedstocks		x	
<u>Criteria 2B</u> Use of existing BMPs from natural resource and pollution control agencies			x
<u>Criteria 2C</u> For purpose-grown energy crops:			x
<u>Criteria 2C(i)</u> Sustainability best management practices plan for specific bio-energy crops			x
<u>Criteria 2C(ii)</u> Use of lands historically used for agricultural purposes			x
<u>Criteria 2C(iii)</u> Use of marginal crop lands not used for food and that do not displace food crops			x
<u>Criteria 2C(iv)</u> Use of crops uniquely suited to climate, water and natural resource constraints in California			x
<u>Criteria 2D</u> Projects that 1) use water efficiency and water use reduction measures, 2) use recycled or reclaimed water, and 3) reduce / eliminate point and nonpoint source wastewater discharge	x	x	x
<u>Criteria 2E</u> Projects that use 1) renewable energy or 2) cogeneration in production, processing or distribution	x	x	x
<u>Criteria 2F</u> Projects that use forest biomass resources collected or harvested in a manner that does not diminish ecological values and that is consistent with restoration, fire risk management and ecosystem management goals.		x	x
<u>Criteria 2G</u> Projects that create benefits to state natural resources or ameliorate degraded resources		x	x
<u>Criteria 2H</u> Alternative fuel infrastructure projects that 1) use low carbon intensity fuels, 2) fuels produced in accordance with natural resource and superior environmental performance goals, or 3) fuels produced in accordance with a certified sustainability protocol	x		
<u>Criteria 3</u> Preference to projects which 1) produce certified sustainable feedstocks, or 2) produce or distribute alternative fuels, in accordance sustainability certification standards	x	x	x

Table 2 – Sustainability Goals, Criteria, Weighting Factors, Metrics and Required Information

Sustainability Goal	Evaluation Criteria	Applicability	Weighting Factor	Metric	Information Requirement
<u>Goal No. 1</u> Substantial Reduction of Greenhouse Gas Emissions	<u>Criteria 1</u> Projects with lowest greenhouse gas emissions from LCFS petroleum baseline (b)(1)(B)	All project types and categories	Very High	Life-cycle scale greenhouse gas carbon intensity value (GHG number)	REET 1.8(b) value, or LCFS methods 1 or 2, or approved CEC alternative method (b)(1)(a)
<u>Goal No. 2</u> Protect the environment and natural resources and promote superior environmental performance	<u>Criteria 2</u> Strong preference to projects demonstrating environmental protection, natural resource preservation and superior environmental performance	All Infrastructure Bio-refineries Bio-feedstocks			Natural resource inputs & impacts. Water, energy, chemical inputs. Energy balance. Process efficiency. Waste streams. Env. impact information. CEQA-type information.
	<u>Criteria 2A</u> Projects that maximize use of waste streams as feedstocks	Bio-refineries	Very High	Types of waste streams Proportion of waste stream in feedstock and final product	
	<u>Criteria 2B</u> Use of existing BMPs from natural resource and pollution control agencies	Bio-feedstocks	Med	Documented use of BMP(s)	Description of BMP and attestation of use
	<u>Criteria 2C</u> For purpose-grown energy crops:				
	<u>Criteria 2C(i)</u> Sustainability best management practices plan for specific bio-energy crops	Purpose-grown energy crops	Med	1) Documented use of crop-specific BMP(s) 2) BMP development plans	
	<u>Criteria 2C(ii)</u> Use of lands historically used for agricultural purposes	Purpose-grown energy crops	Low	Historic use by crop type	
	<u>Criteria 2C(iii)</u> Use of marginal crop lands not used for food and that do not displace food crops	Purpose-grown energy crops	High	Description of lands by soil type and historic crop type	
	<u>Criteria 2C(iv)</u> Use of crops uniquely suited to climate, water and natural resource constraints in Cal.	Purpose-grown energy crops	High	Description of crop with water and soil requirements	

Table 2 – Sustainability Goals, Criteria, Weighting Factors, Metrics and Required Information					
Sustainability Goal	Evaluation Criteria	Applicability	Weighting Factor	Metric	Information Requirement
Goal No. 2 Protect the environment and natural resources and promote superior environmental performance	Criteria 2D(i) Projects that use water efficiency and water use reduction measures	All infrastructure that uses water	Very High	Volume of water used per unit of fuel produced	1) Incremental difference in water use rates compared to industry standards 2) Use of alternative technologies to reduce water use
		All fuel producers and refineries using water			
		Bioenergy crops			
	Criteria 2D(ii) Projects that use recycled or reclaimed water	All infrastructure that uses water	Very High	1) Volume of recycled / reclaimed water used and proportion of all water used 2) Use of alternative water sources as a proportion of water used. ¹	1) Volume of recycled / reclaimed water as proportion of water used 2) Use of technologies that recapture and reuse process water onsite (closed loop technology)
		All fuel producers and refineries using water			
		Bioenergy crops			
	Criteria 2D(iii) Projects that reduce/eliminate point and nonpoint source wastewater discharge	All infrastructure that uses water	Very High	1) Volume of wastewater discharge per unit of fuel produced.	1) Incremental difference in wastewater discharge rates compared to industry standards 2) Off-Site water flow management system and storm water run off management.
		All fuel producers and refineries using water			
		Bioenergy crops			

¹ Alternative water sources: Low grade or impaired water such as water with high salinity. This is not limited to treated waste water.

Table 2 – Sustainability Goals, Criteria, Weighting Factors, Metrics and Required Information					
Sustainability Goal	Evaluation Criteria	Applicability	Weighting Factor	Metric	Information Requirement
<u>Goal No. 2</u> Protect the environment and natural resources and promote superior environmental performance	<u>Criteria 2E</u> Projects that use 1) renewable energy or 2) cogeneration in production, processing or distribution	All Infrastructure Bio-refineries Bio-feedstocks as applicable	High	1) Amount of renewable energy used beyond the baseline RPS levels for the Load Serving Entity (LSE) for the subject facility 2) Amount and type of energy or electricity produced through cogeneration	1) Amount of renewable energy beyond LSE RPS baseline and relative proportion of such energy in total project energy use 2) Amount and type of energy and relative proportion of such energy in total project energy use 3) Documentation of RPS-eligible electricity sales back to the LSE if the cogeneration process results in surplus electricity production beyond the energy requirements of the subject facility
<u>Goal No. 2</u> Protect the environment and natural resources and promote superior environmental performance	<u>Criteria 2F</u> Projects that use forest biomass resources collected or harvested in a manner that does not diminish ecological values and that is consistent with restoration, fire risk management and ecosystem management goals.	Biofuel production projects using forest biomass as part of the feedstock	High	Documentation of the protocols used to harvest or collect the forest biomass resource Relative contribution of the sustainable forest feedstock to total production	1) Attestation that the feedstock came from a thinning operation conducted according to approved AB 118 sustainability protocols. 2) Source of forest biomass material

Table 2 – Sustainability Goals, Criteria, Weighting Factors, Metrics and Required Information

Sustainability Goal	Evaluation Criteria	Applicability	Weighting Factor	Metric	Information Requirement
	<u>Criteria 2G</u> Projects that create benefits to state natural resources or ameliorate degraded resources	All infrastructure associated with biofuels All bio-refineries Biomass production Bioenergy crops	Med	Documentation of the benefit	
	<u>Criteria 2H</u> Alternative fuel infrastructure projects that 1) use low carbon intensity fuels, 2) fuels produced in accordance with natural resource and superior environmental performance goals, or 3) fuels produced in accordance with a certified sustainability protocol	All infrastructure associated with the transport storage and sales of biofuels	High	1) Carbon intensity value and incremental difference from Midwest corn ethanol CI value 2) Documentation of natural resource protection or production efficiencies 3) Amount and type of fuel and sustainability certificate for each lot of such fuel	1) As stated 2) Production efficiency differences from industry standard practices in terms of unit of input per unit of output 3) As stated
<u>Goal No. 3</u> Enhance public / market acceptance of sustainably-produced fuel by developing, promoting and creating incentives for the production of such fuels in accordance with certified, sustainable production practices and standards	<u>Criteria 3</u> Preference to projects which 1) produce sustainable feedstocks, or 2) produce or distribute alternative fuels, in accordance sustainability certification standards	Infrastructure projects associated with biofuels Bio-refineries Bioenergy crops	High	Name and description of certification program. Amount of feedstock or fuel produced or distributed relative to total project production	Attestation of the certification program, location of source materials, description of supply chain management. Volume of feedstock or fuel produced, distributed or sold. Relative proportion of certified sustainable product to all products funded by the AB 118 grant.

II. – WEIGHTING FACTORS AND SUSTAINABILITY SCORES

Each application for AB 118 Program money that is subject to the sustainability criteria described in Section I will be evaluated and scored according to how well it meets the AB 118 Program sustainability goals described in Section 3101.5(a) of the proposed regulations. The sustainability score will be factored in with the other evaluation criteria described in Section 3101 of the proposed regulations.

The sustainability score will have several components, including:

- The full-fuel cycle greenhouse gas emission score as calculated using the California modified GREET model, or another method acceptable to the Energy Commission;
- A tally of the sustainability criteria achieved by the proposed project and a corresponding number of sustainability points; and
- A qualitative evaluation of how well the proposed project generally meets the second sustainability goal – protection of the environment and superior environmental performance.

The qualitative evaluation is important to help distinguish projects that truly avoid the potential for adverse environmental harm from those projects that may have high potential for environmental harm, but adopt multiple sustainability measures into their project design. The latter type of project may have a high sustainability score, but still have a larger total environmental footprint than a project that avoids the potential for environmental damage in the first place.

Professor Steve Kaffka and Sonia Yeh, Ph.D. at UC Davis have advised staff to keep the sustainability scoring system simple in the initial implementation years. They advise against attempting to develop an overly precise or quantitative scoring system, and suggest it is appropriate to leave room for trial and error and qualitative assessments. Staff concurs with this recommendation.

Following are two examples that illustrate how Energy Commission staff propose to apply the sustainability goals and evaluation criteria to hypothetical AB 118 project applications.

Greenhouse Gas Emission Reduction Score Example

The greenhouse gas emission reduction score indicates how far below the petroleum baseline each project performs in terms of its carbon intensity. The carbon intensity of the project fuel pathway is described in Grams of CO₂ equivalent per Mega-Joule of energy (gCO₂-e/MJ). The petroleum baselines for gasoline and diesel are described in the Low Carbon Fuel Standard regulations.

Example 1: An alternative fuel infrastructure developer proposes an E85 fueling station that will use 50 percent California-produced corn ethanol (dry mill with wet distillers grain co-product), 40 percent Midwest corn ethanol from a variety of sources (Mid-West Average 80 percent dry mill and 20 percent wet mill with 95 distillers grain and solubles), and 10 percent

California-produced sweet sorghum, which has no California-modified GREET data, but does have a preliminary staff estimate of its life cycle greenhouse gas score.

Table 3 – Example 1 Sample GHG Reduction Score

	CaRFG Baseline* (gC02- e/MJ)	Cal GREET with iLUC* (gC02- e/MJ)	Difference from Baseline	Percent Fuel Blend	Weighted Difference from baseline
CA Dry Mill WDGS with 100 percent natural gas fuel	95.85	77.4	18.45	50	9.22
Mid-West Avg Corn	95.85	99.4	-3.55	40	-1.42
CA Sweet Sorghum	95.85	30**	65.85	10	6.58
Total weighted difference from baseline	-	-	-	-	14.39

* Carbon intensity values from Air Resources Board LCFS draft regulations and Initial Statement of Reasons (March 5, 2009). iLUC denotes the indirect land use effect greenhouse gas emissions estimate.

** Based on Energy Commission staff preliminary estimate.

The total weighted carbon intensity value for this hypothetical project is 81.46.
(Difference from CaRFG baseline of 95.85 is 14.39)

Sustainability Score Example for a Bioenergy Crop Project

The sustainability score indicates how well a project meets the sustainability goals through the use of the evaluation criteria. Applicants will provide data corresponding to the metrics and information requirements described in Table 2, Sustainability Goals, Criteria, Weighting Factors, Metrics and Required Information. An applicant can refer to both Table 1 and 2 to determine which evaluation criteria apply to their project.

Example 2: A grower proposes to plant sweet sorghum as biofuel crop. This example assumes that sweet sorghum will be planted on 10,000 acres of previously cultivated agricultural land in the San Joaquin valley. Five thousand of the proposed 10,000 acres were previously used for cotton cultivation. The remaining 5,000 acres were historically used agricultural lands that are considered degraded, marginal land.

Table 4 – Example 2 Sample Sustainability Score

Criteria	Weighting Factor (Qualitative)	Sample Answer
<u>Criteria 1</u> Strong preference for projects with substantial reductions in greenhouse gas emissions	Very High	Sweet sorghum's estimated carbon intensity of 30 gCO ₂ -e/MJ is about 65 percent lower than the CaRFG baseline.
<u>Criteria 2</u> Strong preference to projects demonstrating environmental protection, natural resource preservation and superior environmental performance	High	Sweet sorghum has low water requirements, grows well on marginal soils and has a low greenhouse gas score
<u>Criteria 2A</u> Projects that maximize use of waste streams as feedstocks	Very High	Not applicable
<u>Criteria 2B</u> Use of existing BMPs from natural resource and pollution control agencies	Med	Implemented Precision Pest Control Application as outlined in the USDA Natural Resources Conservation Service Electronic Field Office Technical Guide.
<u>Criteria 2C</u> For purpose-grown energy crops:		
<u>Criteria 2C(i)</u> Sustainability best management practices plan for specific bio-energy crops	Med	Grower working with UC Davis to develop sweet sorghum specific BMPs. BMPs will address soil, fertilizer application and water use.
<u>Criteria 2C(ii)</u> Use of lands historically used for agricultural purposes	Low	10,000 acres are all previously used agricultural land
<u>Criteria 2C(iii)</u> Use of marginal crop lands not used for food and that do not displace food crops	High	5,000 of 10,000 acres is marginal land. The remaining 5,000 acres displaces cotton, a non-food crop. Sorghum is moderately tolerant to soil salinity.
<u>Criteria 2C(iv)</u> Use of crops uniquely suited to climate, water and natural resource constraints in California	High	Sweet sorghum is drought resistant, with low water requirements and grows well in California's climate.
<u>Criteria 2D</u> Projects that 1) use water efficiency and water use reduction measures, 2) use recycled or reclaimed water, and 3) reduce / eliminate point and nonpoint source wastewater discharge	Very High	Sweet Sorghum can be grown in semi-arid lands and has low water requirements and is drought resistant. Sweet sorghum requires 45% less water than the cotton crop it is replacing. Run off reduction measures in place.
<u>Criteria 2E</u> Projects that use 1) renewable energy or 2) cogeneration in production, processing or distribution	High	Not applicable
<u>Criteria 2F</u> Projects that use forest biomass resources collected or harvested in a manner that does not diminish ecological values and that is consistent with restoration, fire risk management and ecosystem management goals.	High	Not applicable

Table 4 – Example 2 Sample Sustainability Score (continued)

Criteria	Weighting Factor (Qualitative)	Sample Answer
<u>Criteria 2G</u> Projects that create benefits to state natural resources or ameliorate degraded resources	Med	Data not available
<u>Criteria 2H</u> Alternative fuel infrastructure projects that 1) use low carbon intensity fuels, 2) fuels produced in accordance with natural resource and superior environmental performance goals, or 3) fuels produced in accordance with a certified sustainability protocol	High	Not applicable
<u>Criteria 3</u> Preference to projects which 1) produce sustainable feedstocks, or 2) produce or distribute alternative fuels, in accordance sustainability certification standards	High	Principles from the Roundtable on Sustainable Biofuels have been incorporated though certification is not yet available.

This hypothetical project would score very well on both greenhouse gas reductions and sustainability. Its estimated carbon intensity of 30 gCO₂-e/MJ is well below the gasoline baseline and the score for Midwest average corn ethanol. For sustainability, the sweet sorghum scores well on many criteria because of its low water requirements and its ability to be grown on marginal and degraded soils. This project proponent scores well on additional sustainability criteria because the grower is working with UC Davis on a Sustainability Best Management Practices plan, is using large amounts of marginal agricultural lands, and is only using existing agricultural lands.

Sustainability Evaluation Criteria Weighting Factors

Staff has developed the qualitative weighting factors summarized in Table 5. When the qualitative factors have been finalized, staff will develop a quantitative scoring system as well. One complicating factor that staff has not yet addressed is how to evaluate projects that incorporate a mixture of sustainable and standard practices. For example, how should staff evaluate a project with a feedstock that includes 10 percent from a waste stream, or a mix of degraded water and fresh potable water?

Table 5- Sustainability Evaluation Criteria Weighting Factors

Criteria	Weighting Factor (Qualitative)	Weighting Factor (Quantitative)
<u>Criteria 1</u> Strong preference for projects with substantial reductions in greenhouse gas emissions	Very High	TBD
<u>Criteria 2</u> Strong preference to projects demonstrating environmental protection, natural resource preservation and superior environmental performance	High	
<u>Criteria 2A</u> Projects that maximize use of waste streams as feedstocks	Very High	
<u>Criteria 2B</u> Use of existing BMPs from natural resource and pollution control agencies	Med	
<u>Criteria 2C</u> For purpose-grown energy crops:		
<u>Criteria 2C(i)</u> Sustainability best management practices plan for specific bio-energy crops	Med	
<u>Criteria 2C(ii)</u> Use of lands historically used for agricultural purposes	Low	
<u>Criteria 2C(iii)</u> Use of marginal crop lands not used for food and that do not displace food crops	High	
<u>Criteria 2C(iv)</u> Use of crops uniquely suited to climate, water and natural resource constraints in California	High	
<u>Criteria 2D</u> Projects that 1) use water efficiency and water use reduction measures, 2) use recycled or reclaimed water, and 3) reduce / eliminate point and nonpoint source wastewater discharge	Very High	
<u>Criteria 2E</u> Projects that use 1) renewable energy or 2) cogeneration in production, processing or distribution	High	
<u>Criteria 2F</u> Projects that use forest biomass resources collected or harvested in a manner that does not diminish ecological values and that is consistent with restoration, fire risk management and ecosystem management goals.	High	
<u>Criteria 2G</u> Projects that create benefits to state natural resources or ameliorate degraded resources	Med	
<u>Criteria 2H</u> Alternative fuel infrastructure projects that 1) use low carbon intensity fuels, 2) fuels produced in accordance with natural resource and superior environmental performance goals, or 3) fuels produced in accordance with a certified sustainability protocol	High	
<u>Criteria 3</u> Preference to projects which 1) produce sustainable feedstocks, or 2) produce or distribute alternative fuels, in accordance sustainability certification standards	High	

III. – DEFINITIONS

Criteria 1 – Life-Cycle Scale Greenhouse Gas Emissions

- A carbon intensity score based on an “alternative methodology approved by the Commission” (Section 3101.5 (b)(1)(A)): If applicant cannot provide GREET or LCFS carbon intensity values, the Full Fuel Cycle Analysis (FFCA) tool developed for AB 1007 may be used. If applicant cannot provide data for this either, a “Proxy Pathway” may be used. If sufficient information and verified data about a proposed process is known, and the process is thermodynamically similar to the known fuel pathway with a 1007 FFCA, staff would use the AB 1007 FFCA as a proxy for purposes of evaluating the life cycle analysis of the proposed pathway. Actual results would be substituted when a validated life cycle analysis is done for the proposed fuel pathway. In some instances, Energy Commission staff may develop carbon intensity estimates.

For example, California Sugar Cane ethanol lacks both an LCFS and an AB 1007 FFCA. However both AB 1007 and LCFS reports have Brazilian Sugar Cane fuel pathways. The big difference between the Brazil and California products are transportation distances, process efficiencies, grid electricity composition and indirect land use estimates. Brazilian sugar cane ethanol numbers can be adjusted to reflect these known differences and determine an approximate LCA for California Sugar Cane ethanol. Actual numbers would be substituted for approximate numbers when an actual LCA is done for the California sugar cane ethanol pathway.

Criteria 2 – Promotion of Superior Environmental Performance

- “Environmental performance” denotes the relative environmental efficiency and levels of environmental impacts from industrial facilities, agricultural operations or natural resource extraction activities. Facilities with high levels of environmental performance use fewer natural resource and energy inputs per unit of fuel output, and have smaller waste streams and lower environmental impacts than low environmentally performing facilities.

The baseline for comparison of environmental performance will be standard production practices, industrial processes and harvest practices relevant to the AB 118 project application. Given the wide range of potential subject area and technology applications anticipated for AB 118 funding, staff will not attempt to create baselines for all possible technologies or feedstocks. Rather, staff will ask applicants to provide a point of comparison against which the claim of “superior environmental performance” is made. Staff will evaluate producer claims of enhanced environmental performance on a case by case basis for the initial two years of the Funding Plan.

Measurement of environmental performance can be highly data intensive. Current development work on the California GREET model by Life Cycle Associates to incorporate sustainability metrics will enhance staff’s ability to quantitatively assess changes in environmental performance.

Note that while many measures of natural resource protection and environmental performance generally associated with sustainability are further specified in the

criteria, other factors are not. For example, energy efficiency, process efficiency and criteria emissions are elements of a comprehensive sustainability assessment, but are not further specified in the AB 118 criteria. Factors such as these will be evaluated using the broader concepts of Criteria 2.

In most instances, the type of information needed for Criteria 2 will be the type of information required for a major environmental permit or California Environmental Quality Act (CEQA) review. Staff does not intend for AB 118 applicants to compile and submit two sets of environmental data, nor does staff intend to duplicate a CEQA analysis for sustainability purposes. Rather, the intent is to use the same information that an applicant would have to compile and prepare for CEQA review or major environmental permit for evaluation against the AB 118 sustainability goals and criteria.

Criteria 2A – Waste Streams

- Waste streams include the following categories as defined UC Davis Biomass Resource Assessment for California (CEC-500-2005-066-D):
 - 1) Agricultural waste:
 - Orchard and vineyard prunings and removals
 - Field and seed crop residue such as cereal straws, corn stover.
 - Vegetable crop residue
 - Animal manures
 - Food processing wastes such as, nut shells, fruit pits, rice hulls, cotton gin trash, meat processing residues, grape and tomato pomace, beet residue, cheese whey, beverage wastes, yellow and brown grease.
 - 2) Municipal wastes (post-consumer residues):
 - Municipal solid waste such as, construction and demolition wood residue, paper and cardboard, grass, landscape tree removals (leaves, grass, branches and stumps), food waste, plastics, textiles, metals and minerals etc. Demolition wood residue must be used in a manner that does not release toxins due to treatment of wood. (Direct combustion of demolition residue currently not permitted)
 - Municipal waste-water or sewage, Biosolids from waste-water treatment
 - Biogas from waste-water treatment
 - Landfill gas

Criteria 2B – Existing BMPs from natural resource and pollution control agencies

Common Best Management Practices (BMPs) include, but are not limited to:

- Integrated Pest Management plans
- Soil conservation practices
- Water conservation practices

- Fertilizer/ chemical input minimization practices
 - Best management practices for forest management
- These Best Management Practices pertain to all natural resources and are not limited to agricultural BMPs.

Criteria 2C(i) – Sustainability best management practices plan for specific bio-energy crops

- A Sustainability Best Management Practices Plan denotes a plan developed specifically for a California bioenergy crop in conjunction with institutions such as UC Davis, as opposed to existing BMPs developed by government agencies as described in Criteria 2B. The Sustainability BMPs will apply to agricultural practices such as tillage, water use, fertilizer use, and pesticide application. Growers can develop crop specific BMPs by working with UC Davis or other institutions.

Criteria 2C(ii) – Lands Historically Used for Agricultural Purposes

- Lands historically used for agricultural purposes: Land classifications include Prime Farmland, Farmland of Statewide importance, Unique Farmland, Farmland of Local Importance, and Grazing Land as defined by State of California Department of Conservation, Farmland Mapping and Monitoring Program. Farmland of Local Importance is defined by each county's local advisory committee and adopted by its Board of Supervisors. Farmland of Local Importance is either currently producing, or has the capability of production, but does not meet the criteria of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland.

Further definitions available at:

http://www.conservation.ca.gov/dlrp/fmmp/Documents/soil_criteria.pdf

Criteria 2C(iii) – Marginal Crop Lands

- Marginal crop land: Crop land that is not designated as prime farmland or farmland of statewide importance.

Criteria 2C(iv) – Crops uniquely suited to climate water and natural resource constraints in California

- Crops that thrive in California's Mediterranean climate
- Crops that require little water and that are drought resistant
- Crops that are suitable for growth with little chemical input
- Crops that have minimal potential to disperse beyond areas of cultivation and displace native plant species.

Criteria 2D - Water

- Alternative water sources: Low grade or impaired water such as water with high salinity or waste water streams containing sugars and other degradable materials. This category includes treated waste water.

Criteria 2E – Renewable Energy and Cogeneration

- 1) Renewable Energy: The following is a list of renewable energy based on the Renewables Portfolio Standard Eligibility Commission Guidebook (Publication CEC-300-2007-006-ED3-CMF). Further definitions are available on RPS Overall Program Guidebook (Publication CEC-300-2007-003-ED2-CMF).
 - Biodiesel
 - Biomass
 - Conduit hydroelectric
 - Digester gas
 - Fuel cells using renewable fuels
 - Geothermal
 - Hydroelectric incremental generation from efficiency improvements
 - Landfill gas
 - Municipal solid waste
 - Ocean wave, ocean thermal, and tidal current
 - Photovoltaic
 - Small hydroelectric (30 megawatts or less)
 - Solar thermal electric
 - Wind
- 2) Cogeneration: Cogeneration is defined as electricity or heat production as an element of a biorefinery or other fuel processing technology using waste streams from the feedstock. The electricity or heat can be used to power the production process, or can be sold back to a load serving entity.

Criteria 2F – Forest Biomass

- Forest Biomass: Residue from forest thinning operations conducted in accordance with criteria 2F, residues from chaparral and grassland fuel management operations, residues from commercial logging and mill operations.

The categories described in the California Biomass Assessment include: logging slash, in-forest thinning, residue from stand improvement operations, mill residue, and shrubland biomass.

Criteria 2G

- Ameliorate degraded resources: A project that improves soil, air, water quality, or restores biodiversity as a result of their practices. For example, if a project reduces contaminants in surrounding soil making it more fertile, this would be considered amelioration.

Criteria 2H – Low Carbon Intensity Fuel

- Low carbon fuels include, but are not limited to: renewable biodiesel, liquefied petroleum gas, compressed natural gas, propane
- Ultra low carbon fuels include, but are not limited to: Ethanol from various feedstocks
- Super ultra low carbon fuels include, but are not limited to: hydrogen from renewable sources.

Criteria 3 – Sustainability Certification Standards

- Roundtable on Sustainable Biofuels
- Council for Sustainable Biomass Production
- Sustainable Biodiesel Alliance
- Roundtable for Sustainable Palm Oil
- UK Renewable Fuel Transport Obligation
- European Commission's Sustainability Criteria and Certification Systems for Biomass Production
- Forest Stewardship Council

APPENDIX A

Proposed Regulation Language, Alternative and Renewable Fuels and Technologies Program.

Title 20 California Code of Regulations

Section 3101.5 Sustainability Goals and Evaluation Criteria.

(a) As directed in Health and Safety Code Section 44271(a)(2), the commission establishes the following sustainability goals for the program. The sustainability goals described in this section shall guide the commission in ensuring that funded projects promote sustainable alternative fuels and vehicles and do not adversely affect natural resources. The criteria described in sub-part (b) shall serve as the metrics by which the Commission identifies projects that best achieve the sustainability goals.

(1) The first sustainability goal shall be the substantial reduction of greenhouse gas emissions associated with California's transportation system to help meet California's 2020 and 2050 targets as defined in Health and Safety Code Section 38550 and the Governor's Executive Order S-03-05.

(2) The second sustainability goal shall be to protect the environment, including all natural resources, from the effects of alternative and renewable fuel development and promote the superior environmental performance of alternative and renewable fuels, infrastructure and vehicle technologies.

(3) The third sustainability goal shall be to enhance market and public acceptance of sustainably produced alternative and renewable fuels by developing, promoting, and creating incentives for the production of such fuels in accordance with certified sustainable production practices and standards as established by government agencies, academic institutions, and non-governmental organizations.

(b) In addition to the criteria listed in Section 3101, one or more of the following sustainability criteria shall be applied to each project, as appropriate, with the objective to fund only those projects that best exemplify attainment of the Commission's sustainability goals, promote sustainable alternative fuels and vehicles, and do not adversely affect natural resources. Greater preference will be given to projects that incorporate or demonstrate the greatest number of sustainability criteria.

(1) Strong preference will be given to projects that can best contribute to meeting California's climate change policy goals as described in Health and Safety Code Section 38550, the Governor's Executive Order S-03-05, and the Low Carbon Fuel Standard and that demonstrate the best potential for substantial reduction of greenhouse gas emissions associated with California's transportation system.

(A) Applicants must provide sufficient information to determine the greenhouse gas emissions profile of the proposed project on a full fuel-cycle basis, including an estimate for

greenhouse gas emissions from indirect land use changes, in accordance with the methodologies described in the Low Carbon Fuel Standard, or an alternative methodology approved by the Commission.

(B) Projects with the lowest greenhouse gas emissions from the petroleum baseline, as defined by the Air Resources Board for the Low Carbon Fuel Standard, will demonstrate the best potential to contribute to state climate change policies.

(C) Projects with greenhouse gas emissions that exceed the petroleum baseline, on a full fuel-cycle basis, would not be eligible for funding consideration.

(2) Strong preference will be given to projects that demonstrate environmental protection, natural resource preservation, and superior environmental performance, by the use of manufacturing, production or agricultural technologies and practices which are more energy efficient and less environmentally damaging than current standard practices and technologies for the production of petroleum fuels, production of basic agricultural commodities and extraction of natural resources when measured on a life-cycle basis. The commission will fund projects that best demonstrate and implement practices that preserve ecosystem integrity, protect and enhance the resiliency of natural ecosystems, and respect the physical carrying capacity limits of natural systems at the local, regional, and global scale.

(A) Projects that maximize the use of waste stream materials as their feedstock are examples of technologies that further environmental protection and natural resource preservation goals.

(B) The use of existing Best Management Practices developed by natural resource and pollution control agencies, academic institutions, or non-governmental organizations and that exceed applicable Best Available Control Technologies are examples of appropriate means to protect the environment and natural resources.

(C) For projects using purpose-grown energy crops, furtherance of environmental protection and natural resource preservation goals would be demonstrated by:

i. Development and implementation of a sustainability best management practices plan developed by institutions such as the University of California at Davis.

ii. Use of lands historically used for agricultural purposes.

iii. Use of marginal crop lands that are not used for food crops and that do not displace or disrupt cropping patterns for food production.

iv. Use of crops uniquely suited to climate, water and natural resource constraints in California and the Arid West that require less irrigation water than commonly produced agricultural commodities.

(D) Infrastructure and agricultural projects that implement water efficiency and water use reduction measures, that use recycled or reclaimed water for industrial purposes, and

that reduce or eliminate point source and non-point source wastewater discharge, are examples of appropriate resource protection practices.

(E) Projects that use renewable energy or cogeneration in the production, processing or distribution phase will demonstrate that the project implements environmental protection and natural resource preservation practices.

(F) Projects that use forest biomass resources as part of their feedstock, and that demonstrate the advancement of natural resource protection goals, are those that use forest biomass collection or harvesting practices that do not diminish the ecological values of forest stands, and that are consistent with forest restoration, fire risk management and ecosystem management goals.

(G) Projects that create benefits to state natural resources or that ameliorate degraded resources would demonstrate natural resource protection goals.

(H) Alternative fuel infrastructure projects that procure and distribute low carbon alternative fuels as described in 3101.5 (b)(1), or that are produced in accordance with the sustainability criteria described in sections 3101.5(b)(2) and (b)(3), would demonstrate furtherance of greenhouse gas reduction and natural resource protection goals.

(3) Preference will be given to projects which produce sustainable feedstocks, or produce or distribute alternative fuels, which strictly follow established government or third party sustainability certification standards for the production of alternative and renewable fuels.

- (A) Examples of sustainability certification standards include, but are not limited to:
- i. Roundtable on Sustainable Biofuels
 - ii. Council for Sustainable Biomass Production
 - iii. Sustainable Biodiesel Alliance
 - iv. Roundtable for Sustainable Palm Oil
 - v. UK Renewable Fuel Transport Obligation
 - vi. European Commission's Sustainability Criteria and Certification Systems for Biomass Production
 - vii. Forest Stewardship Council

NOTE: Authority cited: Sections 25211, 25213, Public Resources Code. Section 44271 (a)(1), (2), Health and Safety Code. Reference: Section 44271 (a)(1), (2), 44272 (a), (b), (c), Health and Safety Code.